

1           16. The method of claim 1, further comprising implanting a  
2 stimulation apparatus having an integrated pulse system directly coupled to the first  
3 electrode so that the stimulation apparatus is adjacent to and/or within the skull of the  
4 patient, and wherein positioning the first electrode comprises placing the first electrode  
5 at least proximate to the pia mater.

1           17. The method of claim 1, further comprising implanting a  
2 stimulation apparatus having an integrated pulse system directly coupled to the first  
3 electrode so that the stimulation apparatus is adjacent to and/or within the skull of the  
4 patient, and wherein positioning the first electrode comprises inserting the first  
5 electrode into the cortex of the brain.

1           18. The method of claim 1 wherein applying an electrical potential  
2 comprises placing a voltage of  $\pm 1$  mV to  $\pm 10$  V between the first electrode and a  
3 second electrode.

1           19. The method of claim 1 wherein applying an electrical potential  
2 comprises generating electrical pulses at 2 to 1000 Hz.

1           20. The method of claim 1, further comprising ascertaining a  
2 threshold for generating action potentials for cells at the stimulation site, and wherein  
3 applying an electrical potential comprises placing a subthreshold voltage less than the  
4 threshold for generating action potentials .

1           21. The method of claim 1, further comprising ascertaining a  
2 threshold for generating action potentials for cells at the stimulation site, and wherein  
3 applying an electrical potential comprises placing a subthreshold voltage between the



4 performing physical therapy to the affected body part while or immediately after  
5 applying the electrical potential between the first electrode and a second electrode.

1 27. The method of claim 1 wherein a motor function and/or a sensory  
2 function of a body part controlled by the neural-function has been affected by brain  
3 damage to the first region of the brain, and wherein the method further comprises  
4 pharmaceutically stimulating the brain while applying the electrical potential between  
5 the first electrode and a second electrode.

1 28. A method of effectuating a neural-function of a brain of a patient  
2 associated with a first location in the brain, comprising:

3 identifying a stimulation site in and/or on the brain where neural activity  
4 has changed in response to a change in the neural-function in the first location of the  
5 brain;

6 positioning a first electrode at the stimulation site;

7 positioning a second electrode at the stimulation site; and

8 applying an electrical potential between the first and second electrodes.

1 29. The method of claim 28 wherein identifying a stimulation site  
2 comprises imaging the cortex of the brain.

1 30. The method of claim 28 wherein identifying a stimulation site  
2 comprises:

3 taking a first image of the brain that shows neural activity related to the  
4 neural-function using functional MRI;

5 taking a second image of the brain that shows neural activity related to  
6 the neural-function using functional MRI after taking the first image of the brain; and

7 comparing a change in the neural activity related to the neural-function.